



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,840	10/11/2001	Min-Hsiung Chiang	67,200-547	2281

7590

04/09/2003

TUNG & ASSOCIATES  
Suite 120  
838 W. Long Lake Road  
Bloomfield Hills, MI 48302

EXAMINER

KESHAVAN, BELUR V

ART UNIT

PAPER NUMBER

2825

DATE MAILED: 04/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/975,840

Applicant(s)

CHIANG, MIN-HSIUNG

Examiner

Belur V Keshavan

Art Unit

2825

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 October 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other:

Art Unit: 2825

## DETAILED ACTION

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a) because they fail to show features as described in the specification. For examples: In figure 1, gate oxide is not shown. In figure 2, LDD is not shown

Applicant is requested to revise *all figures* without adding any new material

*Claimed element*

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Specification*

35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms, which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph.

Some of the examples of the above non-compliance of the specification under 35 U.S.C. 112, first paragraph are given below:

On page 12 and in paragraph 38, a salicide gate is disclosed without steps for the formation of the salicide gate. It is stated: "SAC may be configured for use with the semiconductor device" without steps for forming or description as to how the SAC may be configured. "Combining , the self-aligned contact and the salicide gate in the same cell area can

Art Unit: 2825

effectively reduce gate resistance” is recited without any description of the method as to how the combination is achieved.

On page 14 and in paragraph 40, the recitation that “a poly gate is defined” does not describe as to how the gate is defined and does not point out the gate.

On page 14 and in paragraph 41, it is stated “third step 15 illustrates plug implant”. However there is no description of a plug implant and no indication of a plug implant in the figure.

On page 15 and in paragraph 43 it is recited “involves an oxide/silicon nitride etch back step”. However the specification lacks as to how an oxide/Silicon nitride etch back step is involved in the process.

On page 15 and in paragraph 43 “LDD implant 50 layer is deposited” is not clear how implantation and deposition can be done and appears to be contradictory.

The specification is replete with undefined acronyms like “RPO” on page 17 Appropriate corrections are required

**The specification is replete with terms, which are not clear, concise and exact as shown by a few above given examples. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph,** *and without the introduction of new matter.*

#### ***Title of the Invention***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

As claimed in claims 1 and 14, the method of forming a MIM capacitor and self aligned contact is not described in the specification in such a way as to enable a person skilled in the art to make and/or use the invention.

As claimed in claims 15 and 28 the system for fabricating a MIM capacitor and self aligned contact is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2825

Claims 1-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Huang et al. (U.S. Patent No. 6,146,941) in view of S. Wolf (Silicon Processing for the VLSI Era, Volume 2, Pages 144-152).

Regarding claim 1, Huang et al. discloses, in columns 4-6 and in figures 2A-2F, a method of fabricating a capacitor formed on a substrate wherein the capacitor is used in a semiconductor device comprising the following steps: designating a gate comprising polysilicon (206) for the semiconductor device; configuring a self aligned contact, in column 5 and lines 27-28, for the semiconductor device and; combining the gate and SAC in a memory cell area of the semiconductor device, in column 4 and lines 65-66. However, Huang et al. lack a salicide gate. Wolf teaches in figure 3-39 on page 145 salicide gate processing steps along with SAC. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Huang et al. with that of Wolf to fabricate a capacitor in a semiconductor device with a low contact resistance and to increase memory cell density.

Claims 2-13 are rejected as they are dependent on claim 1.

Claims 14-28 are rejected under 35 U.S.C. 112, first paragraph.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Belur V Keshavan whose telephone number is 703 306 5985. The examiner can normally be reached on 8-4:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached on 703 308 1323. The fax phone numbers for the

Art Unit: 2825

organization where this application or proceeding is assigned are 703- 872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

Bvk. *VSK*  
April 1, 2003.

Belur V. Keshavan  
Examiner. Art Unit 2825.

*C. Keshavan*  
CHANDRA KESHAVAN  
PATENT EXAMINER